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Attorney's Docket No.: 2571 USA X 01/TCG/GCM/LE

#23
Declaration
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Patent
9-18-02

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:)
Pravin K. Narwankar et al.) Examiner: Mai, Anh D.
Serial No.: 09/096,858) Art Unit: 2814
Filed: June 12, 1998)
For: METHOD AND APPARATUS FOR)
ANNEALING A DIELECTRIC FILM)
(as amended))

Assistant Commissioner
for Patents
Washington, D.C. 20231

DECLARATION UNDER 37 C.F.R. § 1.131

Sir:

I, Pravin K. Narwankar, declare as follows:

(1) I am an inventor of the claims of the above-captioned application ("the Application") and an inventor of the subject matter described therein.

(2) At least prior to February 26, 1998, the invention claimed in the Application had been conceived and reduced to practice in this country.

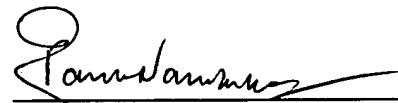
(3) As evidence of invention attached hereto as Exhibit A is an Applied Materials Invention Alert Form entitled: "Use of RPS Technology for 1) Annealing High K Dielectric 2) Depositing of High K Dielectric with Active Anionic Species", which in its unredacted form, is dated prior to February 26, 1998.

(4) All statements contained herein made of my own personal knowledge are true and all statements made herein on information and belief is believed to be

true. I am informed and understand that willful false statements and the like are punishable by fine or imprisonment, or both (18 U.S.C. 1001) and may jeopardize the validity of the application or any patent issuing thereon.

Respectfully submitted,

Date: 9/3/2002



Pravin K. Narwankar



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Circle Only One Area of Technology
Applicable to This Invention:

Metal CVD	AIT	Microcontamination
HDP CVD	PVD	HDP Etch
DCVD	Platform	SHO Etch
RTP	HTF	Metal Etch
TFT/AKT	CMP	AMIL

INVENTION ALERT FORM

(Please use separate attachments for any answers that don't fit on the form, especially for questions 6-8. If the answer to a question is "none", please write "none" rather than leaving the answer blank.)

1. Today's Date: _____
2. Title of Invention: USE OF RPS TECHNOLOGY FOR
annealing high k dielectric ① Annealing high k dielectric ② Deposition of high k dielectric with active anionic species
3. Provide the following information for EACH inventor:

Inventor #1

Name: ANKINEEDU VELAGA
Telephone: 408-253-9194
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Citizenship: US
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Boss's Name: TURGUT SAHIN
Boss's Job Title: PROGRAM MANAGER
His/Her Boss's Name: JAMES TIETZ
His/Her Boss's Job Title: DIRECTOR
Product Group: CAPACITOR / RTP

Inventor #2

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Boss's Name: ANKINEEDU VELAGA
Boss's Job Title: JDP & Integration Manager
His/Her Boss's Name: TURGUT SAHIN.
His/Her Boss's Job Title: Capacitor Program Manager.
Product Group: _____

Inventor #3

Name: TURGUT SAHIN.
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Cupertino, CA 95014
Boss's Name: Jim Tietz
Boss's Job Title: Program Director
His/Her Boss's Name: Chris Granet
His/Her Boss's Job Title: General Mgr, RTP
Product Group: Capacitor Program / RTP

Inventor #4

Urdahl
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Boss's Name: Turgut Sahin
Boss's Job Title: Capacitor Program Manager
His/Her Boss's Name: James Tietz
His/Her Boss's Job Title: Director
Product Group: RTP

4. Earliest dates and model names of all Applied products incorporating the invention which have been offered for sale or are expected to be offered for sale.

5. If the invention has been demonstrated or described to persons other than Applied employees, for each disclosure please provide the earliest date, name of company, and brief description of what information was disclosed and the purpose of the disclosure.

T₂O₅ annealing using RPS O₂ + N₂ mixture was demonstrated to Lucent.

Electrical data was gathered at customer site hence process details were disclosed.

6. If disclosures as in question (4) are expected to occur within the next 12 months, please provide the anticipated date, type of information, and purpose of the disclosure.

As the process will be a potential ~~to~~ BKM process it would have to be disclosed to the customer.

7. Describe the invention, preferably with reference to drawings.

An innovative process to anneal thin films of dielectric material at low temperatures (< 400°C). This process is applicable for a host of dielectric materials ~~among~~ one of those currently used for high k applications for capacitor technology which include : T₂O₅; TiO₂; BST;

8. List each feature of the invention which you consider novel and non-obvious. Describe the advantages of each novel feature in comparison with the state-of-the-art approaches which are closest to your invention.

- ① Annealing at temperatures $< 400^{\circ}\text{C}$ for most dielectric materials this temperature is $<$ deposition temperature.
- ② RPS could be used during the deposition process it self thus eliminating the annealing step.

9. Describe any other known designs, or processes, whether actually implemented or merely proposed in a publication, which could be considered similar to your invention or which constitute the state-of-the-art which your invention improved upon.

10. Signature, date, and printed name of each inventor plus two witnesses who have read and understood this Invention Alert form.

Pravin K. Nanwarkar

Pravin K. Nanwarkar

Turgut Sahin

Turgut Sahin

Akineerul Velat